City of Corvallis Salmon Response Plan

Executive Summary

Prepared for:

City of Corvallis, Oregon
Public Works Department
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DISCLAIMER

The authors have attempted to replace all references to Squaw Creek with the creek's new name, Dunawi Creek. This includes replacing the creek's full name as well as changing Squaw Creek Reach reference labels to indicate Dunawi Creek.

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INTRODUCTION

The City initiated the Salmon Response Plan project during the summer of 2000. The plan was to comply with protection regulations surrounding the listing of Upper Willamette River Spring-run chinook salmon as a threatened species under the Endangered Species Act (ESA) in March 1999 (Federal Register**,** Vol. 64, No. 56, page 14308-14328, March 24, 1999). At that time, the National Marine Fisheries Service (NOAA Fisheries) identified the range or geographic distribution for the Upper Willamette River Spring-run chinook salmon evolutionarily significant unit (ESU; Figure ES1 for a map of the ESU). Jurisdictions located within the ESU, which included the City of Corvallis, would from that date forward be held responsible for preventing any further degradation of chinook salmon habitat.

The purpose of the Salmon Response Plan project was to identify activities (both City of Corvallis sponsored as well as Corvallis citizen behaviors) that negatively impact chinook salmon habitat in Corvallis and develop a plan to, at a minimum, prevent further degradation. Additionally, where chinook salmon habitat existed in city creeks and rivers the City also identified long-term activities that lead toward restoration of properly functioning conditions (PFC) to support chinook salmon.

Controlling Federal Regulation

The federal government since 1973, the year that the ESA was passed, had the authority to identify and impose protections for specific species (wildlife, fish, and plants) in order to prevent these species from becoming extinction. The ESA set out guidelines for listing species, levels of protection depending on whether a species was listed as endangered of or threatened with becoming extinct, any special exceptions to the protections, penalties for violating the protection guidelines, and guidelines for de-listing a species should it no longer be endangered or threatened with extinction.

In July 2000, NOAA Fisheries, the federal agency with regulatory authority for marine species including anadromous fish, published final ESA Section 4(d) Rules for protection of listed salmonids in the northwestern United States (including Upper Willamette Spring Chinook Salmon). Importantly, the ESA Section 4(d) Rules allowed incidental take of listed anadromous fish as long as the jurisdiction could ensure that, overall, it did not jeopardize the listed species from becoming either endangered or extinct. These rules, developed specifically for listed northwestern salmonids, provided options for jurisdictions to obtain an incidental take permit from NOAA Fisheries for its activities. This permit ensured compliance with the ESA and provided protection in the event of legal challenges by the federal government and/or other parties.

Figure ES1. Chinook Salmon Evolutionarily Significant Unit (ESU) Map

See separate file

Project Rationale

The City embarked upon this effort for two reasons. First, the City administration (elected officials) and its residents believed they had a responsibility to help maintain the natural environmental processes critical to the environmental health and quality of life in the Willamette River Valley and state of Oregon. This responsibility had been reflected in many of the City's previous and ongoing activities; from the preservation of open space and natural resources, reduction of stormwater run-off and contamination of local streams, preservation of the Willamette River waterfront, participation in other environmental planning efforts (e.g., State-wide Goal 5 Significant and Natural Features Inventory projects), to the high degree of citizen participation in the city's recycling programs. Participation in the preservation of chinook salmon habitat was consistent with the City's position and ethic to take actions that contributed to overall environmental and community health.

Second, the City administration had a fiduciary responsibility to its residents to protect their interests through responsible decision-making and actions. Such decisions applied to the ESA listing of chinook salmon where the City had compared the costs and benefits of complying with federal rules and the protections that compliance offered to the potential risks, liabilities and costs of non-compliance. The City determined that compliance with the federal rules governing chinook salmon habitat, specifically the ESA Section 4(d) Rules, to be more beneficial than potentially costly third-party law suits challenging the City to demonstrate compliance with these federal rules.

PROJECT STRUCTURE

The City budgeted a multi-year project to develop a Salmon Response Plan. The Plan would assess chinook salmon habitat in streams within the City limits and the area within the unincorporated urban growth boundary (UGB), and develop a response plan based on sound science that would 1) prevent further chinook salmon habitat degradation and 2) eventually put the habitat on a trajectory toward PFC (see project area map in Figure ES2). The City hired a team of consultants with expertise in the ESA, chinook salmon biology and ecology, and the recently implemented ESA Section 4(d) Rules.

While the project was unique in its methodology by using a scientific approach to define, identify, evaluate and protect chinook salmon habitat, it incorporated previous City, regional, and statewide efforts to protect natural resources, water quality, and salmon. Such an approach helped to keep project costs down and provided the project team with useful data, reports, and programs that could be integrated and expanded in the Salmon Response Plan. Among the relevant activities that were incorporated into the Salmon Response Plan was the City's comprehensive stormwater master planning effort and the Goal 5 (Significant Natural Features) planning. Region and statewide programs such as the "Oregon Plan for Salmon and Watersheds" and the Willamette Restoration Initiative (WRI) were also helpful.

Figure ES2. Corvallis Salmon Response Plan Project Area

See separate file

Project Team

The Project Team was made up of three levels – City project management, technical advisory committee, and the technical consultants. Tom Penpraze was the City's overall project manager. Greg Gescher, P.E., supported him. A technical advisory committee (TAC) made up of City staff representatives from across City departments (utilities, transportation, community planning, parks and recreation) and a Benton County planning department representative was appointed to help guide and consulting team and review and comment on the project materials that were prepared by the project team. Professional consultants with expertise in biology, watershed ecology, fisheries science, planning, regulatory compliance, economics, geographic information systems and mapping, and public involvement were hired to manage the day-to-day project activities. Drs. Robert Dillinger and Bill Jones managed the project team from the project's inception to completion.

Two other groups played a significant role in the project and helped guide the final project results. The public (direct stakeholders and public at large) played an important role in the project. Project team communication with the public to inform, educate, and take comment on the type of program that they would support was initiated early and continued throughout the project. Meetings, workshops, news articles, fact sheets, direct contact, questionnaires/comment sheets, and web site communication were the methods the project team used to keep the public involved.

A second important group was NOAA Fisheries, the responsible federal regulating agency. Communication began during the project's early stages to ensure that the City received the benefit of guidance from the Agency that would ultimately receive the City's report and certify compliance under ESA Section 4 (d). Frequent communication continued throughout the entire project.

Two-Phase Study and Key Tasks

The project had two phases. Phase One of the project developed a comprehensive environmental baseline documenting the existing conditions of city streams for chinook salmon habitat. A pathways/effects analysis assessed the impact of City activities and citizen behavior on chinook salmon habitat.

Phase Two used the pathways/effects analysis to determine the degree and geographic distribution of City activities and citizen behavior that negatively impacted habitat. Activities were weighted and ranked according to their impact in order to identify solution options to prevent further habitat degradation and eventually restore PFC. The solution options included activities and programs that were currently implemented or being initiated under different programs as well as new activities. Importantly, the options identified were from across nearly all City departments.

This project would support the final preparation and submission of an ESA Section 4(d) Rule Limit 12 (Municipal, Residential, Commercial, and Industrial Development Program) application to NOAA Fisheries. The application would document the City's understanding of chinook salmon habitat, City activity and citizen behavior impacts, and solutions that would be implemented to meet ESA requirements.

To accomplish this project the following key tasks were completed:

- Development of an existing conditions database (existing sources and field data collection).

- Production of a geographic information systems (GIS) map of city streams with a 400-foot riparian corridor evaluation area (200 feet on each side of the top of bank).

- Creation of a pathways/effects evaluation of City activities (e.g., public infrastructure and services, transportation, operations and maintenance activities, parks and recreation, land use planning etc.) and citizen behavior (e.g., household activities, yard maintenance, home auto repairs, etc.).

- Preparation and submittal of the Phase One report "Baseline Habitat Evaluation and Evaluation of Impacts of City Activities" to NOAA Fisheries (approved by NOAA Fisheries in January 2002).

- Development of a database of weighted data that compared the pathways/effects analysis of City activities and citizen behavior against the baseline conditions database to determine the degree of chinook salmon habitat impact and its distribution.

- Development of solution options to prevent further degradation of chinook salmon habitat.

- Development of solution options to put the City on a trajectory toward achieving PFC in its streams and rivers.

- Development of a monitoring program.

- Preparation of a final report combining both phases of the project into a single report in partial fulfillment of the requirements for submission to NOAA Fisheries.

- Provide extensive public involvement activities throughout the project (stakeholder and open house meetings, press releases, comment forms, project website, etc.) to ensure public understanding of the project and to provide the general public with an opportunity for input.

ACCOMPLISHMENTS

This project took steps to identify and document baseline habitat conditions for chinook salmon and the options available to prevent chinook salmon habitat degradation as well as options that could actually improve such habitat and overall water quality in Corvallis streams. Many of these options have, in fact, been initiated. Through this process the City has also made a substantial effort to meet federal compliance requirements under the ESA, specifically with respect to the ESA Section 4(d) Rule. The results of this effort are briefly described below.

- Scientific understanding of existing conditions: a scientifically based evaluation has been conducted that provides the City with detailed and comprehensive picture of chinook salmon habitat and water quality in the city as well as the unincorporated UGB. The scientific approach was approved and, in fact, lauded by NOAA Fisheries, the federal agency responsible for reviewing all compliance plans for the ESA Section 4(d) Rule. An extensive database was prepared on the existing habitat conditions based upon field data collection and evaluation of existing documentation (sources included the Corvallis, Oregon State University [OSU], and state and federal natural resource agencies). The database provided information on a reach-by-reach basis for all streams that could support chinook salmon habitat in the project area (see Figure ES3 for a map of all the stream reaches evaluated).

- Pathways database: The potential relationship between City activities, citizen behavior and their impact on chinook salmon habitat were analyzed. Public services provided by the City (e.g., public utilities, community planning, land development, transportation, parks and recreation, etc.) and citizen behaviors (e.g., yard maintenance, vegetation, vehicle maintenance, etc.) were evaluated as to their impact on the habitat. A database identifying specific City activities and their relationship to chinook salmon habitat (negative, neutral, or beneficial relationship) was prepared. Similarly, a list of citizen behaviors was prepared that noted whether such activity had a potential negative, neutral, or beneficial relationship on the habitat.

- Phase I Report: The first phase of the project ended with preparation of a report on the City's existing or baseline habitat conditions and the pathways analysis (see Appendix 6). This was submitted to NOAA Fisheries after public input from stakeholders and city residents in special stakeholder meetings and a public workshop. NOAA Fisheries review and response was positive. In a letter to the City (January 7, 2002) they approved the baseline conditions evaluation and pathways analysis and considered it a "thorough compilation of existing and new data" and the pathways analysis showing "the list of activities and potential for impact to fish and habitat appears thorough and thoughtful." Most importantly, the letter stated that "the approach and the baseline data collected will be sufficient for us to determine the technical adequacy of the final 4(d) submittal" (see Appendix 7 for copy of letter).

Figure ES3. Stream Reaches with 400-foot Stream Corridor Evaluation Area Identified

See separate file

- Pathways Weighted Database: A comprehensive database that combined the existing/baseline conditions data with the pathways evaluation data was prepared in the second phase of the project. This was a significant development and important tool for the project because it identified the potential impacts (negative, neutral, or positive) that City activities and citizen behaviors had on chinook salmon habitat on a stream reach by reach basis. That is, it was possible to determine specifically where (i.e., what stream reach or reaches) and to what extent (negative, neutral, positive) a particular activity had on chinook salmon habitat and water quality in the stream reach(es) (see Appendix 5 for a CD of the database). In addition, the analysis incorporated a weighting factor that accounted for an activity's geographic location within or outside of the 400-foot stream corridor evaluation area (200 feet upland each side of the stream bank). Activities or citizen behaviors occurring within the corridor were considered to have a greater impact on chinook salmon habitat than those same activities or citizen behaviors occurring outside the corridor. Due to the number of City activity/stream reach combinations the size of the Pathways Weighted Database included over 3,500 records.

- Potential 4(d) Rule Options: By using the Pathways Weighted Database as an analytic tool it was possible to determine the geographic distribution and impact of City activities. From this database it was possible to determine which activities had the greatest negative impact and therefore potentially the greatest need to address through public policies. The project team evaluated the activities and identified an initial set of potential 4(d) Rule Limit 12 options that could help prevent chinook salmon habitat degradation and improve water quality in Corvallis streams. The options were categorized by City activity (e.g., stormwater, parks and recreation, transportation, etc.). Some of the options identified had already or were about to be implemented by City agencies (e.g., stormwater master plan activities, Taylor pump station fish screen installation, etc.). They were included in the list of options because they would help meet the City's ESA goals and ESA 4(d) Rule objectives. The options were presented to the public twice in public workshops to obtain public comment to help refine the options and set priorities. In addition, comment forms were distributed and posted on the City's ESA web site to gain as wide a set of comments as possible (see Appendices 14 and 15 for copies of the comment forms). A final set of options was developed based on public input and project team review (see Table ES1 at the end of this section for a list of the options that were selected).

- Monitoring Plan: In order to assess progress toward reducing chinook salmon habitat degradation and to meet requirements under the ESA Section 4(d) Rule, the project team prepared a comprehensive monitoring plan. The monitoring program closely followed the requirements outlined in the ESA 4(d) Rule. The monitoring plan would allow the City to assess progress toward meeting its habitat goals and compliance requirements. The plan had scientific and programmatic components. The programmatic component would evaluate the programs and program implementation outlined in the ESA 4(d) Rule Plan. It would focus on overall

program development and implementation that will take place during the life of the plan. The scientific component addressed specific protocols for collecting field data comparing the data against a standard or metric to determine progress. Combined, the monitoring plan would provide the City and NOAA Fisheries a method to track plan progress and effectiveness.

- Final Project Report: A final Salmon Response Plan Report was prepared that incorporated all the project team's work and products. This report outlined what had been accomplished and provided a strong base on which to move forward toward implementing the proposed options and preparing the ESA Section 4(d) Rule report to be submitted to NOAA Fisheries for compliance approval.

FUTURE STEPS

Before the City can submit its formal ESA 4(d) Rule plan to NOAA Fisheries the report identified key activities that need to be addressed. The following are a list of these key activities.

- Select and Implement ESA Options: the City Council will need to formally adopt the proposed ESA 4(d) Rule options identified in this report. NOAA Fisheries requires that the ESA program be implemented to demonstrate that it is complying with the ESA 4(d) Rule. A number of the options are already being implemented as part of other programs, but there are options that cannot be implemented until they are adopted by the City Council. Once formally adopted, the City will need to outline an implementation schedule and initiate implementation for those options that are note already underway.

- Initiate the Monitoring Program: the monitoring program will need to be activated to provide the feedback support necessary to assess program effectiveness.

- Land Development Code Update: the City is in the process of updating its land development code (LDC) to incorporate a number of environmentally sound programs and policies into its development standards. The Stormwater Master Plan, results of the Significant Natural Features (Goal 5) Project and the ESA Salmon Response Plan need to be incorporated into the LDC. By doing so the City can certify that relevant options have been incorporated into the land development standards.

- Comprehensive Plan Update: it will be important for the City to incorporate relevant elements into the City's comprehensive plan. A number of the identified options are related to City planning policies and zoning. While comprehensive planning revisions do not have to be completed, a process should be outlined or underway that the 4(d) Rule report can identify.

- Integration of ESA Plan and data, Stormwater Master Plan, and Significant Natural Features (Goal 5) data: there are two other related projects that should be integrated with the ESA Salmon Response Plan. While they may have been initiated under different authorities, they are related because they address water quality and natural resource features that the ESA program identifies as important for preserving and improving chinook salmon habitat. While there are a number of good reasons why they should be integrated, from the ESA 4(d) Rule program standpoint integration will demonstrate to NOAA Fisheries that the City is taking a comprehensive approach, which will increase the likelihood of success.

- National Environmental Policy Act (NEPA): according to NOAA Fisheries an environmental impact analysis will need to be prepared to accompany the ESA 4(d) Rule Plan submission. It is unclear at this point whether the environmental impact analysis will have to be prepared by the submitting jurisdiction (Corvallis) or by the federal agency. City staff and consultants met with NOAA Fisheries officials in late Fall 2002 and Spring 2003 to discuss the environmental documentation requirement. At that time NOAA Fisheries was considering the preparation of a programmatic environmental impact statement (EIS) that would address the ESA 4(d) Rule Limit 12 that Corvallis was to submit. NOAA Fisheries could not provide a completion date because they had not yet scheduled the EIS work. One option that NOAA Fisheries suggested was that the City could prepare the EIS on its own and submit it with the ESA 4(d) Rule. The environmental documentation would take the City some time and expense to prepare. As of the date of this report, the City has not decided whether they will prepare it.

- Prepare ESA 4(d) Report: Once the above key steps are completed the City will need to submit the ESA 4(d) Rule Report to NOAA Fisheries. The report must address how the City's program will meet each of the 12 limits outlined in the ESA 4(d) Rule Limit 12 (Municipal Commercial Residential Industrial or MRCI) development program. It will be important to demonstrate that all the programs combined satisfy all 12 limits.

These are the key future steps that will need to be taken to meet the City's goals and comply with the ESA 4(d) Rule. They will build on the foundation that has been prepared up to this point.

Table ES1. Considerations and Solution Options Matrix

Solution Option	LIMIT 12 CONSIDERATIONS											
	1	2	3	4	5	6	7	8	9	10	11	12
	Avoid inappropriate Areas (e.g., slopes, wetlands, high habitat value)	Prevents stormwater discharge impacts on water quality & quantity & stream flow patterns in watershed.	Protects riparian areas well enough to attain or maintain PFC	Avoids or minimizes impact of stream crossings (e.g., roads, utilities, linear development) wherever possible.	Adequately protects historic stream meander patterns & channel migration zones & avoids hardening stream banks/shorelines	Adequately protects wetlands, wetland buffers & wetland function – including isolated wetlands.	Adequately preserves permanent & intermittent streams' ability to pass peak flows.	Stress landscaping with native vegetation to reduce the need to water & apply herbicides, pesticides, & fertilizer.	Provisions to prevent erosion & sediment run-off during (& after) construction, prevents sediment & pollutant discharge to streams, wetlands, & other water bodies.	Ensures demands on water supply can be met without affecting the flows that threatened salmonids need.	Provides mechanisms for monitoring, enforcing, funding, reporting, and implementing its program. Formal evaluations to take place every 5 yrs.	Complies with all other state & Federal environmental & natural resource laws & permits.
Land Use												
Zoning	X	X	X	X	X	X	X	X	X	X	X	X
Development Standards	X	X	X	X	X	X	X	X	X	X	X	X
Park & Recreation												
Neighborhood Park Planning	X	X	X	X	X	X	X	X	X	X	X	X
Open Space & Recreation Service Plan	X	X	X	X	X	X	X	X	X	X	X	X

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Capital Improvement Plan	X	X	X	X	X	X	X	X	X	X	X	X
Park O&M Manual		X	X			X		X	X		X	X
Park Inventory	X	X	X	X	X	X	X	X	X	X	X	X
Existing Parks		X	X			X		X			X	X
Park Construction Retrofit	X	X	X	X				X	X	X	X	X
Mini Parks	X	X	X	X	X	X	X	X	X	X	X	X

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Specific Parks	X	X	X			X		X	X	X		X
Equipment Maintenance		X										X
Organic Debris Disposal		X				X			X		X	X
Construction Specifications On-site Construction Activities		X	X			X		X	X		X	X

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Construction Site Enforcement			X			X			X		X	X
Hazardous Materials		X							X			X
Pipe Commissioning		X							X			X
Erosion Control Ordinance		X	X		X	X	X		X		X	X
Sustainability	X	X	X	X	X	X	X	X	X	X	X	X

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Transportation Planning Elements	X	X	X	X	X	X	X	X	X	X	X	X
TDM			X	X		X					X	X
Transportation System Plan	X	X	X	X	X	X	X	X	X	X	X	X
CIP	X	X	X	X	X	X	X	X	X			X
Design Specifications		X				X		X	X			X

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Routine Rd. Maintenance - ESA Limit 10		X		X		X			X		X	X
Stormwater Planning & CIP	X	X	X	X	X	X	X	X	X	X	X	X
Erosion Control Ordinance		X	X		X	X	X		X		X	X
O&M		X	X			X		X	X			X
Monitoring											X	X

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Wastewater Wastewater Treatment											X	X
Facility Oils & Grease Program											X	X
Wastewater Collection,	X			X		X			X		X	X
O&M						X			X		X	X
Master Plan and CIP	X	X	X	X	X	X	X	X	X	X	X	X

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Discharge						X					X	X
Water Water Supply Conservation								X		X	X	X
Water Intake										X	X	X
Distribution	X			X		X			X	X	X	X

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	1	2	3	4	5	6	7	8	9	10	11	12
	Avoid inappropriate Areas (e.g., slopes, wetlands, high habitat value)	Prevents stormwater discharge impacts on water quality & quantity & stream flow patterns in watershed.	Protects riparian areas well enough to attain or maintain PFC	Avoids or minimizes impact of stream crossings (e.g., roads, utilities, linear development) wherever possible.	Adequately protects historic stream meander patterns & channel migration zones & avoids hardening stream banks/shorelines	Adequately protects wetlands, wetland buffers & wetland function – including isolated wetlands.	Adequately preserves permanent & intermittent streams' ability to pass peak flows.	Stress landscaping with native vegetation to reduce the need to water & apply herbicides, pesticides, & fertilizer.	Provisions to prevent erosion & sediment run-off during (& after) construction, prevents sediment & pollutant discharge to streams, wetlands, & other water bodies.	Ensures demands on water supply can be met without affecting the flows that threatened salmonids need.	Provides mechanisms for monitoring, enforcing, funding, reporting, and implementing its program. Formal evaluations to take place every 5 yrs.	Complies with all other state & Federal environmental & natural resource laws & permits.
O&M						X			X		X	X
Citizen Behavior Public Education Involvement	X	X	X	X	X	X	X	X	X	X		
Incentives		X	X			X		X		X		
Pollution Prevention	X	X	X		X	X	X	X	X	X	X	X

Table ES1. Considerations and Solution Options Matrix

Solution Option	LIMIT 12 CONSIDERATIONS											
	1	2	3	4	5	6	7	8	9	10	11	12
	Avoid inappropriate Areas (e.g., slopes, wetlands, high habitat value)	Prevents stormwater discharge impacts on water quality & quantity & stream flow patterns in watershed.	Protects riparian areas well enough to attain or maintain PFC	Avoids or minimizes impact of stream crossings (e.g., roads, utilities, linear development) wherever possible.	Adequately protects historic stream meander patterns & channel migration zones & avoids hardening stream banks/shorelines	Adequately protects wetlands, wetland buffers & wetland function – including isolated wetlands.	Adequately preserves permanent & intermittent streams' ability to pass peak flows.	Stress landscaping with native vegetation to reduce the need to water & apply herbicides, pesticides, & fertilizer.	Provisions to prevent erosion & sediment run-off during (& after) construction, prevents sediment & pollutant discharge to streams, wetlands, & other water bodies.	Ensures demands on water supply can be met without affecting the flows that threatened salmonids need.	Provides mechanisms for monitoring, enforcing, funding, reporting, and implementing its program. Formal evaluations to take place every 5 yrs.	Complies with all other state & Federal environmental & natural resource laws & permits.
Landscaping			X		X	X	X	X		X		
Household		X	X					X	X	X		X
Vehicle Maintenance		X	X									X
Riparian Areas		X	X		X	X	X	X	X	X		X